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# Sugarcane Burning Contribution to the National Greenhouse Gases Emission (GHG) Inventory

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The national greenhouse gases emission inventory is actually in the drafting stage of its third edition, aiming the annual estimation of GHG emissions from some sectors. Organized according to the structure suggested by IPCC (Intergovernmental Panel on Climate Change), the inventory is being built with information coming from various sectors of the Brazilian economy, such as energy, industry, land use change and forestry, waste management and agriculture. The agriculture sector was also divided in sub-areas, such as enteric fermentation, rice cultivation, emissions from agricultural soils and burning of agricultural residues. In 2010, burning agricultural residues accounted for 1.2% of the total emissions from the sector. The continuous inventory update is essential and indispensable to position Brazilians emission in the global emissions. The present study aimed to compile current information about the sugarcane culture, in order to estimate the contribution of burning the culture residues and foment mitigation public policies for the agricultural sector. For this survey, secondary statistics database were used, from governmental institutes as IBGE (Brazilian Institute of Geography and Statistics), Conab (National Supply Company), and CANASAT (INPE - National Institute for Space Research), and representatives of the sugarcane industry as UNICA (Brazilian Sugarcane Industry Association) and UDOP (Union of Producers of Bioenergy). The methodology used (IPCC, 2006) reports only the non-CO2 emissions (particularly CO, $CH_4$, $N_2O$ and $NO_x$), because $CO_2$ emissions from biomass burning are balanced by the CO2 that is reincorporated back into biomass via photosynthetic activity, within weeks after burning. The inventory uses some variables, as total area harvested, harvested without burning area, all in million ha, as well as in production in millions of tons, productivity (t $ha^{-1}$) for the period 2006 to 2012. The surveys pointed to the 59% increase in the area planted with sugarcane (6.1 million ha in 2006 to 9.7 million hectares in 2012), and the South Central region of the country has 4.3 million ha of harvested without burning area. São Paulo State reduced the burning of their areas in 59% due to a governmental agreement that expect the end of sugarcane burning for the 2014/2015 season. From 2006 to 2010, the production increased 720.6 M t, since productivity fell 5%, from 77.8 t $ha^{-1}$ to 74.3 t $ha^{-1}$. In 2010, the major emissions from burning agricultural residues has been observed since 1990, calculated in 6,314 Gg CO, 4.8 Gg $N_2O$, 171.6 Gg of NOx and 185.3 Gg $CH_4$, a reduction of approximately 10 % in 2012 was reported, due to a decrease in the burning areas. The inventory can point out several mitigation procedures, and one of them is the decrease in burning operation at harvesting contribute to reduce the intensity of greenhouse gas emissions in Brazilian agriculture.

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